

Abstract of the Disclosure:

It is an object to provide a solid electrolyte and an electrochemical system using the solid electrolyte which has a little expansion (swelling) and whose strength does not decrease in case of positioning the solid electrolyte including a complex compound composed of an inorganic compound, polyvinyl alcohol, and water, in a wet condition. It is possible to use the solid electrolyte in a device such as a fuel cell or an electrolytic device used with the wet condition. The solid electrolyte has a little size variation even if humidity varies and has a low methanol permeability. The solid electrolyte is produced by replacing a part or all of hydroxyl groups of polyvinyl alcohol domain to groups each of which has a water absorption less than that of said hydroxyl group, in the solid electrolyte including a complex compound which is composed of polyvinyl alcohol, water, and at least one inorganic compound selected from silicic acid compound, tungstic acid compound, molybdic acid compound, stannic acid compound, and zirconic acid compound.